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L1 59 (FAT? OR OIL?) (S) (NMR OR (NUCLEAR (2W) SPECTR?))(S) (DRY? OR DRI?)

L1 ANSWER 1 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Characterization of unsaturated polyester and alkyd resins using one- and two-dimensional NMR spectroscopy

L1 ANSWER 2 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Magnetic resonance imaging as a predictive tool for sensory characteristics and intramuscular fat content of dry-cured loin

L1 ANSWER 3 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Influence of drier combination on through-drying in waterborne alkyd emulsion coatings observed with magnetic resonance profiling

L1 ANSWER 4 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Influence of drier combination on through-drying in waterborne alkyd emulsion coatings observed with magnetic resonance profiling

L1 ANSWER 5 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Determination of the lipid content in fish muscle by a self-calibrated NMR relaxometry method: comparison with classical chemical extraction methods

L1 ANSWER 6 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Rapid determination of fat in food samples by microwave drying and NMR

L1 ANSWER 7 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Determination of furanodienone and isofuranodienone in the dried rhizome of *Curcuma angustifolia* Roxb

L1 ANSWER 8 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI NMR response of non-reservoir fluids in sandstone and chalk

L1 ANSWER 9 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Quantitative determination of silicone oils in silica

L1 ANSWER 10 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Low-field <sup>1</sup>H nuclear magnetic resonance and chemometrics combined for simultaneous determination of water, oil, and protein contents in oilseeds

L1 ANSWER 11 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Additives using boron-containing phosphate derivatives for traction drive oils

L1 ANSWER 12 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI New knowledge in the use of NMR- and computer tomographic methods for the evaluation of the damage potential of additives in drilling fluids

L1 ANSWER 13 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Preparation and structure characterization of amphoteric AM-AA-DMDAAC copolymers

L1 ANSWER 14 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Study of water and oil bodies in seeds by nuclear magnetic resonance

L1 ANSWER 15 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Heat-stable vinylidene chloride-type polymer thin film moldings for packagings and their manufacture

L1 ANSWER 16 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Rapid moisture and fat determination by pulsed NMR for monitoring drying and coating processes of extrudates

L1 ANSWER 17 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN  
TI Seed oil determination without weighing and drying the seeds by combined free induction decay and spin-echo nuclear magnetic resonance signals

L1 ANSWER 18 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN  
TI Rapid fat and water determination by nuclear magnetic resonance for drying and fat coating control of extrudates

L1 ANSWER 19 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN  
TI Carbon-13 nuclear magnetic resonance measurement of oil composition in soybean [*Glycine max* L. Merr] germination under different oxygen conditions

L1 ANSWER 20 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN  
TI Termite resistance test of hardwoods of Kochi Prefecture growth. IV. Isolation and identification of a termiticidal component of *Litsea coreana* leveille wood

L1 ANSWER 21 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN  
TI Near infrared quality monitoring in chocolate processing by 3D control model

L1 ANSWER 22 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN  
TI Components of the essential oil of *Saussurea involucrata* (Kar. et Kir.) ex Maxim

L1 ANSWER 23 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN  
TI Assessment of oxidative deterioration of salted dried fish by nuclear magnetic resonance

L1 ANSWER 24 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN  
TI Glycerol, glucose and 2-acetoacetoxyethyl methacrylate: effect on methyl linolenate oxidation and yellowing

L1 ANSWER 25 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN  
TI Application of NMR to food science

L1 ANSWER 26 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN  
TI Process for oxidizing polymers derived from unsaturated ketones

L1 ANSWER 27 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN  
TI Characterization parameters of brown coal hydrogenation reactivity from proton NMR measurements

L1 ANSWER 28 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN  
TI Tracing metabolic changes in soybean cotyledons during germination by NMR

L1 ANSWER 29 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN  
TI The use of NMR in the study of drying mechanisms in coatings

L1 ANSWER 30 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN  
TI Evaluation of a microwave-NMR method for oil sand oil-water-solids analysis

L1 ANSWER 31 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN  
TI Seed proton NMR spin-grouping

L1 ANSWER 32 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN  
TI Comparison of aromaticity and phenolic content as parameters for characterization of coal by carbon-13 NMR spectroscopy

L1 ANSWER 33 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN  
TI Investigation of the essential oil of Vietnamese ginger

L1 ANSWER 34 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN  
TI Nuclear magnetic resonance study of interaction of drilling fluid with reservoir rocks on model objects

L1 ANSWER 35 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Carbon-13 solid-state nuclear magnetic resonance spectra of some air-cured alkyd polyester paints  
 L1 ANSWER 36 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI The analysis of cured drying oils by swollen state carbon-13 NMR spectroscopy  
 L1 ANSWER 37 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI NMR line shape-relaxation correlation analysis of bitumen and oil sands  
 L1 ANSWER 38 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Simultaneous determination of moisture and oil content in oilseeds by pulsed nuclear magnetic resonance  
 L1 ANSWER 39 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI The use of low resolution nuclear magnetic resonance for determining avocado maturity by oil content  
 L1 ANSWER 40 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Identification of the constituents of volatile oils from Chinese Asarum species: II. Volatile oil from huaxixin, *Asarum sieboldii*  
 L1 ANSWER 41 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Determination of fat content in fried potato products using NMR  
 L1 ANSWER 42 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Studies on the components in shale oil. X. Isolation and identification of (+)-drim-8-ene from light oil fraction of Colorado shale oil  
 L1 ANSWER 43 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Seed oil determination by pulsed nuclear magnetic resonance without weighing and drying seeds  
 L1 ANSWER 44 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Single corn kernel wide-line NMR oil analysis for breeding purpose  
 L1 ANSWER 45 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Study of lipid-protein interaction using pulsed NMR  
 L1 ANSWER 46 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Quantitative analysis of food products by pulsed nuclear magnetic resonance. II. Simultaneous analysis of water and fat in milk powder and cottage cheese  
 L1 ANSWER 47 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Rapid method for the NMR determination of the oil content of grains after drying in a microwave oven  
 L1 ANSWER 48 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Effect of drying conditions on oil content of sunflower (*Helianthus annuus* L.) seeds as determined by wide-line nuclear magnetic resonance (NMR)  
 L1 ANSWER 49 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Physicochemical analyses of the bovine milk fat globule membrane. III. Proton magnetic resonance spectroscopy  
 L1 ANSWER 50 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Components of medicinal plants. XXXVI. Nicotine and 3-formyl-4-hydroxy-2H-pyran from *Herpestis monniera*  
 L1 ANSWER 51 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Rapid method for the determination of the dry matter and fat content of cheese and processed cheese  
 L1 ANSWER 52 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Chemical constituents from Hepaticae. VI. Isolation of 10-nonacosanol and cupraene from the liverwort, *Bazzania pompeana*

L1 ANSWER 53 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI The studies on the components of Tade. II. The structure of tadeonal and isotadeonal, components of *Polygonum hydropiper*

L1 ANSWER 54 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Synthesis and properties of the analgesic dl-.alpha.-1,3-dimethyl-4-phenyl-4-propionoxyazacycloheptane (proheptazine)

L1 ANSWER 55 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Formation of 1,5,7,11-tetrathiaspiro[5.5]undecane in the reaction of cyclic trimethylene trithiocarbonate with 2,2'-iminodiethanol

L1 ANSWER 56 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Ergot alkaloids. LIV. Chemical determination of the absolute configuration of lysergic acid

L1 ANSWER 57 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Lithium-drifted p-i-n junction detectors

L1 ANSWER 58 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Decomposition of a hindered .alpha.-diazo ketone

L1 ANSWER 59 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

TI Structure of castoramine

L1 ANSWER 10 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2000:759796 CAPLUS

DOCUMENT NUMBER: 134:41281

TITLE: Low-field <sup>1</sup>H nuclear magnetic resonance and chemometrics combined for simultaneous determination of water, oil, and protein contents in oilseeds

AUTHOR(S): Pedersen, Henrik Toft; Munck, Lars; Engelsen, Soren Balling

CORPORATE SOURCE: Food Technology, The Royal Veterinary and Agricultural University, Frederiksberg C, DK-1958, Den.

SOURCE: Journal of the American Oil Chemists' Society (2000), 77(10), 1069-1076

CODEN: JAOCA7; ISSN: 0003-021X

PUBLISHER: AOCS Press

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Prediction of the content of water, oil, and protein in rape and mustard seed was examd. by a combination of low-field <sup>1</sup>H NMR (LF-NMR) and chemometrics, enabling utilization of the entire relaxation curves in the data evaluation. To increase the range of relative contents, the untreated seeds were wetted and dried; each treatment was followed by NMR anal. The chemometric results are compared to traditional evaluation by multi-exponential fitting of the relaxation curves. For this purpose, a new Jack Knife validation procedure was developed to evaluate the no. of exponential components objectively. Classification of the 2 kinds of seeds was easily performed by LF-NMR. Partial least squares regression to oil content in untreated rape and mustard seed yielded models with correlation coeffs. of  $r = 0.88$  and  $0.89$  with root mean square error of cross-validation (RMSECV) of  $0.84$  and  $0.45$ , resp. The rapeseed model was based on one component,

whereas the mustard seed model was based on 2 components. If the seeds were dried, the predictive performance improved to  $r = 0.98$  and  $RMSECV = 0.36$  for rapeseed and to  $r = 0.95$  and  $RMSECV = 0.38$  for mustard seed. Upon drying, prediction of protein content in mustard seed improved, whereas the prediction of protein for rapeseed deteriorated. Global models, including the combination of untreated, wet, and dry seeds, all resulted in a robust and good predictive performance with  $RMSECV$  in the range 0.8-1.3% to water, oil, and protein content. It was demonstrated that drying the seeds to simultaneously det. water and oil content was not necessary when chemometrics was applied on the relaxation curves.

REFERENCE COUNT: 27

L1 ANSWER 14 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1997:722112 CAPLUS

DOCUMENT NUMBER: 128:1968

TITLE: Study of water and oil bodies in seeds by nuclear magnetic resonance

AUTHOR(S): Pouliquen, Daniel; Gross, Dieter; Lehmann, Volker; Ducournau, Sylvie; Demilly, Didier; Lechappe, Joel

CORPORATE SOURCE: Lab. de Biophysique, Faculte de Medecine, 1, ru Haute-de-Reculée, Angers, 49045, Fr.

SOURCE: Comptes Rendus de l'Academie des Sciences, Serie III: Sciences de la Vie (1997), 320(2), 131-138

CODEN: CRASEV; ISSN: 0764-4469

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Two techniques of NMR were used for the study of water and lipid reserves in seeds. The temp. dependence of T1 relaxation time helps to identify differences in the thermodyn. properties of water between dry and germinating seeds. Among the species studied, T2 measurements distinguish two categories of seeds: pea, maize and wheat for which two components of T2 are obsd., and lettuce, tomato and radish which present one single component. The main short component is attributed to water whereas the long one is attributed to lipids from oil bodies. Images of two dry seeds, one of pea and the other of radish, show marked differences in the distribution of NMR signal intensity, suggestive of differences in distribution of oil bodies.

REFERENCE COUNT: 23

L1 ANSWER 16 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1996:114751 CAPLUS

DOCUMENT NUMBER: 124:173814

TITLE: Rapid moisture and fat determination by pulsed NMR for monitoring drying and coating processes of extrudates

AUTHOR(S): Davenel, Armel; Marchal, Philippe

CORPORATE SOURCE: Technology Div., Dep. Agric. Food Eng., Rennes, Fr.

SOURCE: International Journal of Food Science and Technology (1995), 30(5), 655-62

CODEN: IJFTEZ; ISSN: 0950-5423

PUBLISHER: Blackwell

DOCUMENT TYPE: Journal

LANGUAGE: English

AB After extrusion cooking, extrudates must be dried and are often coated by spraying with fatty materials before cooling and packaging. As a means to control the drying and coating processes of pet foods, a rapid NMR method was developed to det. water and fat contents over a large temp. range without weighing, heating or measuring the temp. of the samples. Weighing was avoided by normalizing all NMR intensities by the solid echo max. of each sample. Formulas using ests. of the transverse relaxation time and the concn. of liq. fat protons were used to det. total fat and moisture contents without measuring the temp. of the samples. Fat content estn. had a std. deviation better than 0.2% over a large solid fat index range above 20.degree.C. Water content was detd. with a std. deviation of about 0.2% at all temps. studied.

L1 ANSWER 17 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1995:801081 CAPLUS

DOCUMENT NUMBER: 123:196886

TITLE: Seed oil determination without weighing and drying the seeds by combined free induction decay and spin-echo nuclear magnetic resonance signals

AUTHOR(S): Tiwari, P. N.; Gambhir, P. N.

CORPORATE SOURCE: Nucl. Res. Lab., Indian Agric. Res. Inst., New Delhi, 110012, India

SOURCE: Journal of the American Oil Chemists' Society (1995),72(9), 1017-20

CODEN: JAOCA7; ISSN: 0003-021X

PUBLISHER: AOCS Press

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The free induction decay (FID) and echo signals in a spin-echo pulse sequence have been used for seed oil detn. without weighing and drying the seeds with NMR equipment that has a magnetic field of low homogeneity. Earlier known methods, based on use of the FID signal to det. seed oil, become inapplicable when the magnetic field homogeneity is poor, because the angular position of seed significantly affects the signal. The present method, which elegantly eliminates the angular dependence, involves sampling the FID signal at 10 .mu.s after a 90.degree. pulse and the subsequent echo signal at 100 .mu.s formed by applying a 180.degree. pulse at 50 .mu.s. Such short pulse spacing in spin-echo sequence produces almost a full oil signal. It also eliminates the effects of sample-to-sample variation in T2 and mol. diffusion on oil signal. The oil values obtained by this method are in good agreement (correlation for mustard: 0.952; linseed: 0.99; and peanut: 0.912) with the values obtained by the well established and accurate pulsed NMR method, which is based on the measurement of the FID signal of oil in dried and weighed seeds.

L1 ANSWER 18 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1995:557482 CAPLUS

DOCUMENT NUMBER: 123:31475

TITLE: Rapid fat and water determination by nuclear magnetic resonance for drying and fat coating control of extrudates

AUTHOR(S): Davenel, A.; Marchal, P.  
CORPORATE SOURCE: Department of Agricultural and Food Engineering,  
Cemagref, Rennes, 35044, Fr.  
SOURCE: Developments in Food Science (1994), 36, 35-42  
CODEN: DFSCDX; ISSN: 0167-4501

DOCUMENT TYPE: Journal

LANGUAGE: English

AB With a view to controlling the drying and fat coating processes of extruded pet foods, a rapid NMR method was developed for the detn. of moisture and fat content in large temp. ranges, without weighing and tempering samples and measuring the temp. of the samples. Formulas using ests. of the transverse relaxation time and concn. of liq. fat protons were used to det. total fat and moisture content without measuring the temp. of the samples. Added fat content estn. gave a std. deviation better than 0.2% above 20.degree.C. Water content was detd. with a std. deviation of about 0.2% of any temp.

L1 ANSWER 25 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1992:127050 CAPLUS

DOCUMENT NUMBER: 116:127050

TITLE: Application of NMR to food science

AUTHOR(S): Nagashima, Nobaya

CORPORATE SOURCE: Ajinomoto K. K., Japan

SOURCE: Japan Fudo Saiensu (1991), 30(8), 56-62

CODEN: JAFSAA; ISSN: 0368-1122

DOCUMENT TYPE: Journal; General Review

LANGUAGE: Japanese

AB A review with 19 refs. on the use of NMR for study of fatty acid compn. in oilseeds, of plant essential oils, of starch degree of dextrinization, of alc. fermn., of water states in food products., and of freeze-drying of food products.

L1 ANSWER 29 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1990:141275 CAPLUS

DOCUMENT NUMBER: 112:141275

TITLE: The use of NMR in the study of drying mechanisms in coatings

AUTHOR(S): Kennedy, Richard J.

CORPORATE SOURCE: Paint Res. Assoc., Teddington, UK

SOURCE: FATIPEC Congress (1988), Vol. IV(19th), 237-52

CODEN: FAPVAP; ISSN: 0430-2222

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Carbon-13 NMR spectroscopy was used to identify the autoxidn. products for Me linoleate, soybean oil, and alkyds.

L1 ANSWER 30 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1989:577641 CAPLUS

DOCUMENT NUMBER: 111:177641

TITLE: Evaluation of a microwave-NMR method for oil sand oil-water-solids analysis



AUTHOR(S): Thompson, Gordon R.  
CORPORATE SOURCE: Res. Dep., Syncrude Canada Ltd., Edmonton, AB, T6C 4G3, Can.

SOURCE: AOSTRA Journal of Research (1989), 5(2), 135-43

CODEN: AJREEU; ISSN: 0822-2509

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A new method of oil sand oil-water-solids anal. involves the detn. of water by microwave drying, followed by measurement of oil content by NMR spectroscopy. Data from the anal. of 175 samples by Express (cold MePh-iso-PrOH) extn.), extractor (hot MePh extn.), and the microwave-NMR method are compared. The microwave drying method for water detn. is satisfactory in its agreement with the extractor method (correlation coeff. 0.992) and is superior to the express water anal. method for samples contg. >10% water. This method is sep. applicable for the detn. of water in oil sand samples and for the prepn. of dry samples. The NMR oil anal. method is acceptable for >95% of the samples for which it was tested. Samples with a high magnetic susceptibility are not suitable for anal. by this method. Those samples for which it is not suitable may be identified quickly and easily by measurement of the sample magnetic susceptibility. Correlation coeffs. between data from the 3 methods are all >0.99. The method advantages are a redn. of elapsed time by a factor of .apprx.2 and the elimination of solvent use. These are gained at the cost of a significant capital investment.

L1 ANSWER 31 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1988:201101 CAPLUS

DOCUMENT NUMBER: 108:201101

TITLE: Seed proton NMR spin-grouping

AUTHOR(S): Schreiner, L. J.; Pintar, M. M.; Blinc, R.

CORPORATE SOURCE: Dep. Phys., Univ. Waterloo, Waterloo, ON, Can.

SOURCE: JAOCS, J. Am. Oil Chem. Soc. (1988), 65(1), 106-8

CODEN: JJASDH

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Proton spin grouping (Peemoeller, H.; Pintar M., 1984) in the rotating frame allows for a distinction between oil, water, and starch protons with a resolu. which exceeds the one with the std. proton T1 or T2 oil and water sepn. expts. Hence, it has clear advantages in plant breeding programs in those situations where, because of the relatively high oil and water content, the std. NMR technique fails unless the seeds are dried artificially. This technique is just as fast as the std. technique. Spin-grouping was demonstrated with sunflower and Canola seeds and the results examd. relative to the oil, water, and starch contents.

L1 ANSWER 38 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1985:77350 CAPLUS

DOCUMENT NUMBER: 102:77350

TITLE: Simultaneous determination of moisture and oil content in oilseeds by pulsed nuclear magnetic resonance

AUTHOR(S): Gambhir, P. N.; Agarwala, A. K.

CORPORATE SOURCE: Nucl. Res. Lab., IARI, New Delhi, 110012, India

SOURCE: JAOCS, J. Am. Oil Chem. Soc. (1985), 62(1), 103-8

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Pulsed NMR with a Carr-Purcell-Meiboom-Gill (CPMG) sequence was used for simultaneous detn. of moisture and oil content in rapeseed-mustard. This method involves sampling the free induction decay (FID) following 90.degree. pulse in the CPMG sequence and resolving the trace of the amplitude of the CPMG echo signals into exponentially decaying liq. components of oilseeds. The data show that water in oilseeds generally exists in 2 phases and the relatively slow decaying component disappears around a moisture content of .ltoreq.7%. The moisture and oil contents were detd. by the method for 34 samples of 5 different varieties of seeds at varying moisture levels (.apprx.3-22%). The measured moisture and oil contents were compared with the values obtained by the oven drying method and earlier known FID method of pulsed NMR , resp., and the agreement is fairly good for rapid estn. with std. deviation of 0.70% for oil content and 0.99% for moisture content. This is a rapid and nondestructive method for detn. of both moisture and oil content without weighing and drying the seeds and also seems suitable for other matrix samples.

L1 ANSWER 39 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1983:590930 CAPLUS

DOCUMENT NUMBER: 99:190930

TITLE: The use of low resolution nuclear magnetic resonance for determining avocado maturity by oil content

AUTHOR(S): Barry, G. A.; Brown, B. I.; Barker, L. R.

CORPORATE SOURCE: Agric. Chem. Branch, Dep. Primary Ind., Indooroopilly, Australia

SOURCE: Journal of Food Technology (1983), 18(4), 401-10

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A method for detg. oil content of dried avocado flesh using a low resolu. NMR spectrometer is described. Forty samples were analyzed for oil content by NMR, Soxhlet extn., and refractive index (RI) methods. Percentage of oil by NMR was more closely correlated with Soxhlet extd. oil than was percentage of oil detd. by a RI method. Data from .apprx.700 avocado samples showed that percentage of oil detd. by NMR was better correlated with percentage of dry matter than was percentage of oil detd. by RI. The relations between dry matter and oil were far more consistent between seasons for the NMR method than for the RI one. Advantages of using the NMR technique in avocados are simplicity, speed, low operator errors, and the elimination of the use of dangerous solvents. A reproducibility relative std. deviation of 0.6% was obtained.

L1 ANSWER 41 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1982:5009 CAPLUS

DOCUMENT NUMBER: 96:5009

TITLE: Determination of fat content in fried potato products using NMR

AUTHOR(S): Putz, B.  
CORPORATE SOURCE: Bundesforschungsanst. Getreide- und Kartoffelverarbeit.,  
Detmold, Fed. Rep. Ger.  
SOURCE: Fette, Seifen, Anstrichmittel (1981), 83(10), 388-91  
DOCUMENT TYPE: Journal  
LANGUAGE: German

AB Fried potato samples had to be dried to .ltoreq. 3% moisture before fat detn. by NMR could be carried out. The same fat used for frying had to be used as a std. in the detn. Changes in fat quality after frying interfered with the detn. The method had a variability of 4% when carried out under optimum conditions.

L1 ANSWER 43 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1980:159946 CAPLUS

DOCUMENT NUMBER: 92:159946

TITLE: Seed oil determination by pulsed nuclear magnetic resonance without weighing and drying seeds

AUTHOR(S): Tiwari, P. N.; Burk, W.

CORPORATE SOURCE: Nucl. Res. Lab., Indian Agric. Res. Inst., New Delhi, India

SOURCE: Journal of the American Oil Chemists' Society (1980), 57(3), 119-21

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Pulsed NMR, which takes about 10 s per anal., was used for rapid nondestructive detn. of oil in oilseeds without weighing and oven drying the seeds. This was done by measuring the free induction decay signal of solid and liq. in oilseeds. The oil values detd. by this method for mustard, sunflower, and soybean seeds were compared with the values detd. by measuring the oil signal alone in the intact seeds, which takes about 2 min per anal. Correlation for mustard were 0.988, for sunflower 0.945, and for soybean 0.931. The reasons for better agreement for mustard and the way of improving it for sunflower and soybean have been discussed.

L1 ANSWER 44 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1980:143438 CAPLUS

DOCUMENT NUMBER: 92:143438

TITLE: Single corn kernel wide-line NMR oil analysis for breeding purpose

AUTHOR(S): Wilmers, M. C. C.; Rettori, C.; Vargas, H.; Barberis, G. E.; Da Silva, W. J.

CORPORATE SOURCE: Inst. Fis. Gleb Wataghin, Univ. Estadual Campinas, Campinas, 13100, Brazil

SOURCE: Revista Brasileira de Fisica (1978), 8(3), 562-75

CODEN: RBFSA3; ISSN: 0374-4922

DOCUMENT TYPE: Journal

LANGUAGE: English

AB In wide-line NMR expts. detg. the oil content in single corn seeds having .apprx.10% moisture or artificially dried to .apprx.5% moisture, the non-dried seeds NMR spectra clearly demonstrated the presence of 3 resonances with different radio frequency satn. factors. For dried seeds, the oil concn. detd. by NMR was highly correlated ( $r = 0.997$ ) with that detd. by a gravimetric method. The highest discrepancy

between the 2 methods was .apprx.1.3%. When relative measurements are required, as in the case of a single kernel for a recurrent selection program, precision in the individual selected kernel will be .apprx.2.5%. Using this technique, a first cycle of recurrent selection using S1 lines for low and high oil content was performed in an open-pollinated variety. Gain from selection was 12.0 and 14.1% in the populations for high and low oil contents, resp.

L1 ANSWER 45 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1979:609533 CAPLUS

DOCUMENT NUMBER: 91:209533

TITLE: Study of lipid-protein interaction using pulsed NMR

AUTHOR(S): Trumbetas, J.; Fioriti, J. A.; Sims, R. J.

CORPORATE SOURCE: Tech. Cent., Gen. Foods Corp., White Plains, NY, 10625, USA

SOURCE: Journal of the American Oil Chemists' Society (1979), 56(10), 890-3

CODEN: JAOCA7; ISSN: 0003-021X

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Pulsed NMR measurement made on freeze-dried emulsions contg. fat and protein demonstrated that this method can be used to det. the degree of lipid-protein interactions. Interaction was max. near the isoelec. range of the protein, supporting the theory that hydrophobic interactions are predominant. Triglycerides and Me esters of fatty acids interacted to nearly the same degree as fatty acids, indicating that the carboxyl group plays a minor role. The degree of interaction increased when the emulsions were homogenized at higher pressures. There was an inverse relation between interaction and foamability of the rehydrated emulsion, suggesting that less protein is available for film formation after interaction. Fat-protein interaction also protected the protein against denaturation. These measurements may lead toward a better understanding of lipid-protein interactions in food systems.

L1 ANSWER 46 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1977:437430 CAPLUS

DOCUMENT NUMBER: 87:37430

TITLE: Quantitative analysis of food products by pulsed nuclear magnetic resonance. II.

Simultaneous analysis of water and fat in milk powder and cottage cheese

AUTHOR(S): Hester, R. E.; Quine, D. E. C.

CORPORATE SOURCE: Dep. Chem., Univ. York, York, UK

SOURCE: Journal of Dairy Research (1977), 44(1), 125-30

CODEN: JDRSAN; ISSN: 0022-0299

DOCUMENT TYPE: Journal

LANGUAGE: English

AB By pulsed NMR using a small process analyzer, the water and fat contents of milk powders were detd. as 1-5 and 0.5-25% resp. with std. deviations of 0.20% and 0.64% resp. Cottage cheese samples contained water and fat in the ranges 77-81 and 2-7% resp. with std. deviations of 0.30% water and 0.16% fat. Procedures used for establishing and eliminating cross interferences in these analyses are described.

L1 ANSWER 47 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1976:431689 CAPLUS

DOCUMENT NUMBER: 85:31689

TITLE: Rapid method for the NMR determination of the oil content of grains after drying in a microwave oven

AUTHOR(S): Karleskind, A.; Valmalle, G.; Chemin, S.

CORPORATE SOURCE: Lab. Wolff, Paris, Fr.

SOURCE: Revue Francaise des Corps Gras (1976), 23(3), 147-50

CODEN: RFCGAE; ISSN: 0035-3000

DOCUMENT TYPE: Journal

LANGUAGE: French

AB Two primary problems in the detn. of oil in cereal grains by NMR were overcome, viz. moisture content and variation in the grains, esp. rapeseed. The sample is dried in a microwave oven under carefully controlled conditions, and oil is assayed by ref. to the fatty acid compn. of the oil. The sample (20 g) in a porcelain dish is dried 200 sec in a microwave oven equipped with plates to absorb some of the radiant energy, which otherwise would be too strong. It is then transferred to the NMR app. The response of the app. is compared to that given by a known oil similar in compn. to that of the oil in the test material. The amt. of oil in the test sample is then calcd. by ref. to the known sample.

L1 ANSWER 48 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1976:402107 CAPLUS

DOCUMENT NUMBER: 85:2107

TITLE: Effect of drying conditions on oil content of sunflower (*Helianthus annuus* L.) seeds as determined by wide-line nuclear magnetic resonance (NMR)

AUTHOR(S): Granlund, M.; Zimmerman, D. C.

CORPORATE SOURCE: Dep. Biochem., North Dakota State Univ., Fargo, ND, USA

SOURCE: Proceedings of the North Dakota Academy of Science (1975), 27, Pt. 2, 128-32

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The relation between sunflower seed oil content as detd. by NMR and seed moisture was studied. Random samples of 2 varieties of sunflower seed (Mingren and Peredovik) were dried at 60.degree. to retain seed vitality; the NMR reading and moisture content decreased significantly after the 24-hr treatment. Addnl. drying reduced the dry wt. but did not significantly affect the oil content as detd. by NMR. Drying could be done at 130.degree. for 1 hr with the same results. Either drying method showed the oil content of the Peredovik variety to be 49.6%.

L1 ANSWER 49 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1972:524930 CAPLUS

DOCUMENT NUMBER: 77:124930

TITLE: Physicochemical analyses of the bovine milk fat globule membrane. III. Proton magnetic resonance spectroscopy

AUTHOR(S): Chandan, R. C.; Cullen, J.; Chapman, D.

CORPORATE SOURCE: Unilever Res. Lab. Colworth-Welwyn,  
Frythe/Welwyn/Herts., UK

SOURCE: Journal of Dairy Science (1972), 55(9), 1232-6

DOCUMENT TYPE: Journal

LANGUAGE: English

AB High resolution NMR spectra were from freeze-dried milk fat globule membranes in D<sub>2</sub>O. The effect of increasing temp. on spectra of the Me<sub>2</sub>CO-extd. membrane was related to thermal behavior of its lipid components. At 33.4.degree. the spectrum of the membrane reflected Me<sub>2</sub>CO-sol. lipids. At 50.degree. the spectrum of Me<sub>2</sub>CO-extd. membrane was still dominated by signals from lipids, which increased in intensities at from 60 to 120.degree.. No signals attributed to proteins were obsd. before and after treatment with 8 M urea and Na deoxycholate. However, treatment with a more powerful denaturing solvent, trifluoroacetic acid, resulted in sharp resonances attributable to amino acids. This observation indicated ordered configuration for membrane proteins. Data presented suggested little or no restriction in mol. freedom of protons of the membrane constituents. In this regard bovine milk fat globule membrane contrasted with erythrocyte membrane.

L1 ANSWER 51 OF 59 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1972:418163 CAPLUS

DOCUMENT NUMBER: 77:18163

TITLE: Rapid method for the determination of the dry matter and fat content of cheese and processed cheese

AUTHOR(S): Moisio, Tauno; Timonen, Erkki; Kreula, Matti

CORPORATE SOURCE: Valio Lab., Helsinki, Finland

SOURCE: Milchwissenschaft (1972), 27(2), 73-5

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A NMR method is described for the detn. of fat and dry matter content of cheese and processed cheese.